REMARKS

Entry of the foregoing amendment to the claims is respectfully requested under *35 CFR 1.111*. It is fairly believed that the present amendment complies with the requirements of *37 CFR 1.121* generally, and does not involve any new matter in accordance with *37 CFR 1.121(f)* in particular.

Claims 1 and 9 are currently amended.
Claims 1, 3-13 are in the application.

At item 3 of the Office action, the Examiner stands claims 1-5, 7, 9-11 rejected under *35 U.S.C. 103 (a)* as being unpatentable over *Integrated Intelligent Control System for Peroxide Bleaching Processes* by XIA et al., hereinafter XIA, in view of *Economizing the Bleaching Agent Consumption by Controlling Wood Chip Brightness* by DING et al., hereinafter DING, and, if necessary, *Influence of knot fibers on TMP properties* by SAHLBERG, hereinafter SAHLBERG.

While the Examiner has provided explanations as to why claims 1,3,4, 5, 9-11 are rejected under *35 U.S.C. 103 (a)* over XIA in view of DING and, if necessary, SAHLBERG, no explanations are given as to why the Examiner rejects claim 7. The Applicants earnestly request the Examiner to provide explanations as to the pertinence of the cited, complex references to support his rejection of claim 7, in accordance with 37 CFR 1.104 (c)(2).

At item 4 of the Office action, the Examiner stands claims 6-8,12 and 13 rejected under *35 U.S.C. 103 (a)* as being unpatentable over XIA in view of DING, and if necessary, *Influence of knot fibers on TMP properties by* SAHLBERG and further in view of BLEVINS as evidenced by KIM.

The Applicants assume that when the Examiner refers to claim 7 at second paragraph of page 9 of his Office action, he rather intends to refer to claim 8.

Reconsideration of the Examiner's rejection under *35 U.S.C. 103 (a)* of claims 1-5, 7, 9-11 is respectfully requested in view of the presently submitted amendment to claim 1.

Claim 1 as amended now define a method for estimating an optimal dosage of bleaching agent to be used in a process for producing pulp of a required brightness value from wood chips characterized by a mix of species as disclosed from page 4, line 9 to page 5, line 16 of the specification as filed. Amended claim 1 also specifies

that the predictive model <u>is based on a proportional relation between the wood chip size and the predicted brightness value</u>, which feature also find its support in the specification as filed, and more particularly at page 10, lines 17-24 in view of the graph of Figure 1, at page 12, lines 26-27 continuing on page 13, lines 1-4 in view of Table 5 and Table 4 found at page 12, line 11. None of the XIA, DING and SAHLBERG references teaches said feature.

In his latest Office Action, while the Examiner stated that the Applicants' communication dated 1/23/2009 has been fully considered, there are no Examiner's comments as to the Applicants' arguments set forth in the last paragraph of page 11 of said communication, continuing on page 12 thereof. Essentially the same arguments are herein being raised again as follows regarding XIA, further in view of SAHLBERG. According to the Examiner's view, "large chips will tend to refine poorly and as such will require <u>more</u> bleaching". Assuming that such inference could have been proposed by the person skilled in the art, the present application contains objective evidence of an unexpected result contrary to that inference, clearly indicating the non-obviousness character of the claimed method. Examiner's attention is directed to the graph of Figure 1 included in the application as filed, showing relative importance index of independent variables according to PLS analysis, as discussed at page 1 lines 17-24. Although the concentrations of bleaching agents (NAOH, PEROA) have predictably been found to have most impact on the dependant variables including pulp brightness, chips size (CO_moy) has been surprisingly found to have a contribution to bleach pulp properties response, ahead of H, L and S (Reflectance-related properties) and surface moisture. Furthermore it can be seen from the data of table 5 as discussed at page 12 lines 26-27 continuing on page 13 lines 1-4, that a change in chip size over its experimental span given at Table 4 (16.49-21.39) will give a positive change in brightness of 7.9, with an optimal (maximum) brightness value obtained at the maximum value of chip size as mentioned at page 12, lines 9-21 of the description in view of Table 4. According to the method of claim 1 as now amended, the predictive model is based on such proportional relation between the wood chip size and the predicted brightness value, when the wood chips are characterized by a mix of species. The Applicants agree with the Examiner's interpretation of XIA, which teaches that bleach plant brightness is dependent on chip species/chip quality. However, even if the term "chip quality" could be instantly recognizable to the artisan of ordinary skill in the art as including "chip size", in contrary to the Examiner's view, the result that large chips would favour brightness rather than adversely affect it, and therefore would require <u>less</u> bleaching, is unexpected, and therefore, the proportional relation between the wood chip size and the predicted brightness value at the basis of the predictive model of the invention would certainly not appear obvious to the skilled artisan.

The Applicants agree with the Examiner's interpretation of SAHLBERG, which teaches that over-thick and over-sized chips tend to contain knots, and that chips with high knot content consume more peroxide and have a lower

brightness [table III] . Hence, in view of SAHLBERG, assuming that chip size is a surrogate for knot content, large chips would adversely affect brightness rather than favour it, and therefore would require more bleaching, as opposed to the result obtained with the proportional relation between the wood chip size and the predicted brightness value at the basis of the predictive model of the invention. Such opposed results could be explained by the fact that SAHLBERG deals with a single, pure wood chip species, namely Scandinavian spruce (*picea abies*), while the claimed method is applied to wood chips characterized by a mix of species, the indirect, favouring effect of which on brightness, through wood chip size obtained from chipping, would be to overcome any adverse effect on brightness which might be due to knot content. When considering XIA/DING in view of SAHLBERG, the result that large chips would favour brightness rather than adversely affect it, and therefore would require less bleaching, is unexpected, and therefore, the proportional relation between the wood chip size and the predicted brightness value at the basis of the predictive model of the invention would certainly not appear obvious to the skilled artisan.

Accordingly, amended claim 1 as well as dependent claim 3-5, and 7 to which they relate, are now fairly believed by the Applicants to be in full compliance with the requirements of *35 U.S.C. 103 (a)*.

Claim 9 being currently amended by the Applicants in a same way as done for claim 1, it now defines an apparatus for estimating an optimal dosage of bleaching agent to be used in a process for producing pulp of a required brightness value from wood chips characterized by a mix of species, and by specifying that the predictive model is based on a proportional relation between the wood chip size and the predicted brightness value. In view of the foregoing arguments presented with respect to amended claim 1, the Applicants fairly believe that apparatus claim 9 as well as claim 11 from which it depends are in full compliance with the requirements of *35 U.S.C. 103 (a)*.

As to dependent claims 6, 8, 12-13, since they refer either to allowable independent method claim 1 or apparatus claim 9 as presently amended, they are also believed to be allowable.

Considering the foregoing amendments, the Applicants respectively submit that claims 1-2, 4-13 are now in condition for allowance.

A favourable consideration for the allowance of all claims contained in the present application is respectfully requested.

Respectfully submitted,

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